

suggest holding two substrates in such a way that a plate surface thereof forms an angle to the horizontal between 60 and 90 degrees. The Examiner relies upon *Hayashi* for this teaching. The Examiner further recognizes that *Coad* fails to teach the horizontal movement mechanism which moves a substrate holder via a through chamber to a plurality of process chambers and an alignment chamber hermetically connected to the through chamber, wherein a substrate holder is in the alignment chamber. The Examiner relies upon *Hosokawa* for the alleged teaching of the alignment chamber.

Applicant respectfully requests that the Examiner reconsider and withdraw the outstanding rejection. Specifically, the Applicant believes that there is no appropriate motivation to combine the references as alleged by the Examiner, and, even if the references are combined, they do not teach or suggest the present invention.

Specifically, claim 1 recites a substrate processing device that includes, among other things, a through chamber which constitutes a vacuum chamber, and wherein a plurality of vacuum process chambers are hermetically connected to a perimeter of the through chamber. The substrate processing device of claim 1 further includes an alignment chamber hermetically connected to the through chamber. In addition, the carry system of the substrate processing device of claim 1 comprises a substrate holder which holds a substrate upright in such a way that the plate surface thereof forms an angle to the horizontal and between 45 degrees and 90 degrees.

Although both *Coad* and *Hayashi* teach substrate carriers wherein the substrates are carried in such a way that a plate surface thereof forms an angle to the horizontal between 60 and 90 degrees, *Hosokawa* is completely different. As can be seen in Figures 2A and

3, the atmospheric transfer arm 36 of *Hosokawa* carries the substrates in a horizontal orientation. In addition, the vacuum transfer arm 38 also supports the substrates in a horizontal orientation. Accordingly, *Hosokawa* is not set up for transferring the substrates in the orientation disclosed and described in claim 1 or in the *Coad* and *Hayashi* references. Accordingly, one of ordinary skill in the art seeking to improve the teachings of *Coad* and *Hayashi*, at least with respect to substrate transfer, would not be motivated to look to art wherein the substrates are transferred in a horizontal orientation.

Furthermore, the Examiner alleges that it would have been obvious to use the teachings of *Hosokawa* "in order to controllably position the substrate with high accuracy as taught by *Hosokawa*". However, the alignment mechanism of *Hosokawa* is necessary because the substrates are transferred individually and horizontally, i.e., not by a carry system. Accordingly, it is necessary to periodically align the substrates between transfers. Since *Coad* and *Hayashi* transfer the substrates on a carry system, an alignment system, such as that disclosed by *Hosokawa*, would be irrelevant, and in fact could not be configured to work with the *Coad* or *Hayashi* vertically orientated carry devices.

Accordingly, there is not only no motivation to combine *Hosokawa* with *Coad* or *Hayashi*, but to do so would involve substantial modification of *Coad* and *Hayashi*. In fact, if *Coad* and *Hayashi* were modified to the extent necessary to use the alignment technology of *Hosokawa*, then *Coad* and *Hayashi* would no longer be relevant to the present invention. In other words, if so modified, *Coad* and *Hayashi* would no longer have a carry system that comprises a substrate holder which holds a substrate upright in

such a way that a plate surface thereof forms an angle to the horizontal of between 45 and 90 degrees.

Accordingly, *Coad*, *Hayashi*, and *Hosokawa* cannot be modified as proposed by the Examiner. The Examiner has merely used the claims as a shopping list to search through the prior art to individually pick out elements without regard as to whether or not there is any motivation to select the elements, and, more importantly, whether the elements can be properly combined in a manner that is recognized and accepted by the courts. Applicant submits that the combination proposed by the Examiner fails these tests, and is thus improper with regard to 35 U.S.C. §103.

In addition, the Examiner relies upon *Hosokawa* for an alleged teaching of an alignment chamber hermetically connected to the through chamber. However, it is quite clear from a reading of *Hosokawa*, that the atmospheric cassette load station 12, which the Examiner alleges corresponds to the claimed hermetically connected alignment chamber, is not in any way hermetically connected to any other chamber in the *Hosokawa* device. Specifically, the atmospheric cassette load station 12 is always maintained at atmospheric pressure, and thus is not hermetically sealed to the load lock chambers 14, 16. Before substrates are transferred from the atmospheric cassette load station 12 to the load lock station 14, or from the load lock station 16 to the atmospheric cassette load station 12, the respective load lock station 14, 16 is pressurized to atmospheric pressure so that the transfer can take place without any hermetic seal between the atmospheric cassette load station 12 and the corresponding load lock chambers 14, 16. Accordingly, there is no

teaching or suggestion in any of the cited prior art of an alignment chamber hermetically connected to the through chamber.

Furthermore, any sideways movement of a substrate in the atmospheric cassette load station 12 does not move the substrate in an upright orientation, as required by claim 1.

Accordingly, there are several significant reasons why the combination of *Coad*, *Hayashi* and *Hosokawa* is not only improper, but if sustained, would not teach or suggest claim 1 of the present invention.

Claims 2-5 depend from claim 1, and are thus patentable over the cited prior art at least for the reasons set forth above with respect to claim 1.

Claim 6 is an independent claim that recites a substrate processing device. Claim 6 includes the elements discussed above with regard to claim 1 upon which Applicants are relying upon in order to distinguish the claims from the Examiner's combination of prior art. Accordingly, claim 6, and dependent claims 7-10 are also patentable over the Examiner's combination of prior art at least for the reasons set forth above with respect to claim 1.

Claim 11 defines a through chamber having a perimeter to which a plurality of vacuum processing chambers are hermetically connected. Claim 11 also recites all of the elements discussed above with respect to claim 1, upon which Applicant is relying in order to distinguish claim 1 over the prior art. Accordingly, claim 11 is also patentable over the Examiner's combination of prior art at least for the reasons set forth above with respect to claim 1.

Claim 12 depends from claim 11, and is thus also patentable over the applied prior art at least for the reasons set forth above with respect to claim 12.

Claims 13-15 have been rejected over the art discussed above, and further in view of U.S. Patent No. 6,451,181, hereinafter *Denning*. The Examiner relies upon *Denning* only for its teaching of a heater in the alignment chamber. Accordingly, this does not overcome the deficiency of *Coad*, *Hayashi* and *Hosokawa* that is discussed above. Accordingly, claims 13-15 are also in condition for allowance.


Applicants reserve the right to challenge the Examiner's interpretation of an analysis of the individual prior art references, as well as the right to present additional arguments as to why the combinations may be improper.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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